



Figure 7- figure supplement 2. Model of HMMR regulation of spindle positioning via Ran regulation of NuMA-Dynein complexes.

(A) Proposed pathway through which PLK1/HMMR/Ran regulate cortical NuMA dynein. PLK1 activity controls astral microtubule density, which strips cortical NuMA localization. Silencing HMMR dampens PLK1, potentially through Aurora A. pHMMR, a proposed Aurora A and PLK1 substrate, locates RanBP2-RanGTP at spindle poles although the relative contribution to cortical NuMA localization remains unclear.

(B) Wild-type cells reposition mitotic spindles through force produced by asymmetric dynein motor localization. The asymmetric force is produced by stripping of cortical NuMA/Dynein by centrosomal PLK1/HMMR/Ran. Loss of HMMR (-HMMR) reduces the stripping effect regulated by the centrosome and leads to misoriented and mispositioned mitotic spindles. Overexpression of HMMR (+GFP-HMMR) strips NuMA completely from the cortex during metaphase. Mispositioned spindles are not able to correctly center.